

Tailoring a Human Reliability Analysis to Your Industry Needs

Companies at risk of accidents caused by human error that result in catastrophic consequences include: airline industry mishaps, medical malpractice, medication mistakes, aerospace failures, major oil spills, transportation mishaps, power production failures and manufacturing facility incidents. Human Reliability Assessment (HRA) is used to analyze the inherent risk of human behavior or actions introducing errors into the operation of a system or process. These assessments can be used to identify where errors are most likely to arise and the potential risks involved if they do occur. Using the basic concepts of HRA, an evolving group of methodologies are used to meet various industry needs. Determining which methodology or combination of techniques will provide a quality human reliability assessment is a key element to developing effective strategies for understanding and dealing with risks caused by human errors.

There are a number of concerns and difficulties in “tailoring” a Human Reliability Assessment (HRA) for different industries. Although a variety of HRA methodologies are available to analyze human error events, determining the most appropriate tools to provide the most useful results can depend on industry specific cultures and requirements. Methodology selection may be based on a variety of factors that include: 1) how people act and react in different industries, 2) expectations based on industry standards, 3) factors that influence how the human errors could occur such as tasks, tools, environment, workplace, support, training and procedure, 4) type and availability of data, 5) how the industry views risk & reliability, and 6) types of emergencies, contingencies and routine tasks. Other considerations for methodology selection should be based on what information is needed from the assessment. If the principal concern is determination of the primary risk factors contributing to the potential human error, a more detailed analysis method may be employed versus a requirement to provide a numerical value as part of a probabilistic risk assessment. Industries involved with humans operating large equipment or transport systems (ex. railroads or airlines) would have more need to address the man machine interface than medical workers administering medications.

Human error occurs in every industry; in most cases the consequences are relatively benign and occasionally beneficial. In cases where the results can have disastrous consequences, the use of Human Reliability techniques to identify and classify the risk of human errors allows a company more opportunities to mitigate or eliminate these types of risks and prevent costly tragedies.